(No Model.)

W. COPPAGE.

RATCHET DRILL STOCK.

No. 385,660. Patented July 3, 1888.

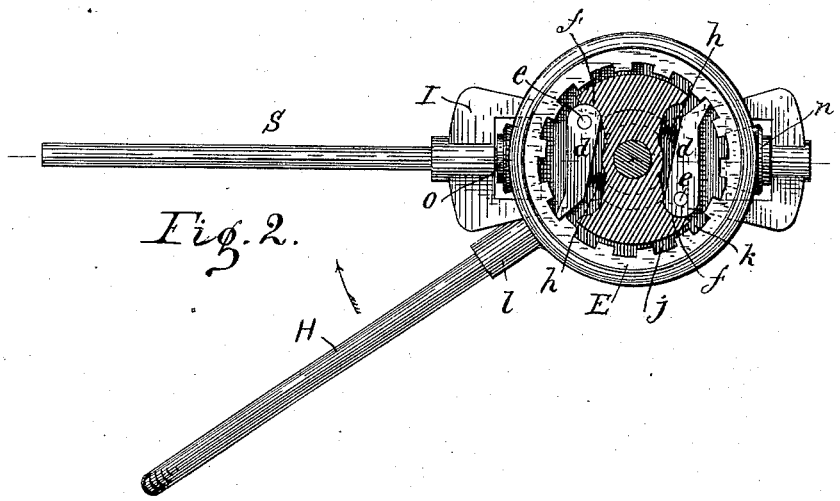

Fig. 2.

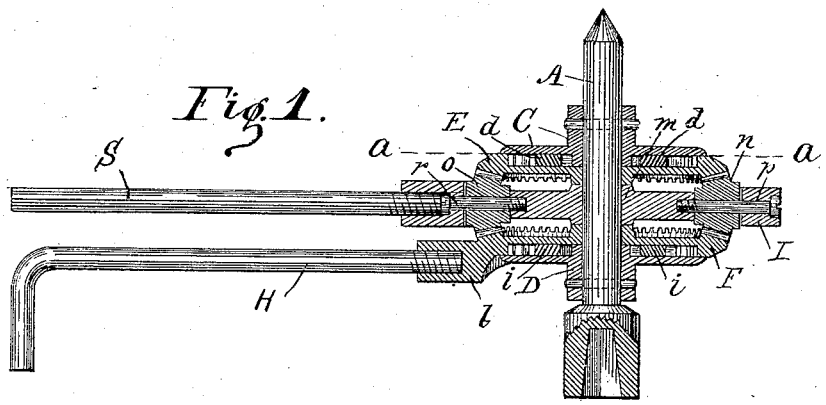

Fig. 1.

Witnesses.
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UNITED STATES PATENT OFFICE.

WILLIAM COPPAGE, OF TERRE HAUTE, INDIANA, ASSIGNOR OF ONE-HALF TO WILLIAM H. LARIMER AND PETER CRACKENBERGER, BOTH OF SAME PLACE.

RATCHET-DRILL STOCK.

SPECIFICATION forming part of Letters Patent No. 385,660, dated July 3, 1888.

Application filed March 12, 1888. Serial No. 267,033. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM COPPAGE, a citizen of the United States, residing at Terre Haute, in the county of Vigo and State of Indiana, have invented a new and useful Improvement in Ratchet-Drill Stocks, of which the following is a specification.

My invention relates to an improvement in that class of ratchet-drill stocks in which the spindle in which the drill is held is rotated in one direction by both the forward and backward movement of the operating-lever.

The object of my improvement is to provide a tool of this class which may be easily and cheaply manufactured, and which shall be strong and durable, thereby making it adapted to use in mining coal and other like rough work.

The accompanying drawings illustrate my invention.

Figure 1 represents a side elevation, parts of which are shown in section. Fig. 2 is a plan at *a*, Fig. 1.

A is a spindle having in one end a socket, B, for holding the drill or other like tool.

C is a flanged collar secured rigidly to the spindle, so as to turn therewith, and carrying pawls *d d*, pivoted to the flange at *e*, and each having its pivoted end rounded and resting against an abutment, *f*, formed on the collar, the purpose being to prevent undue strain on the pivot *e*. The free ends of pawls *d* are forced outward by springs *h h*.

D is a collar like C, having like pawls, *i*, and also secured rigidly to the spindle, so as to turn therewith, but arranged with its working-face opposite that of collar C.

E is a bevel gear-wheel having on its back side a cylindrical recess, *j*, adapted to receive the abutment portion of collar C and the pawls *d*, and having also around its circumference a series of notches, *k*, adapted to engage the free end of the pawls. Gear-wheel E is mounted so as to turn freely on the spindle next to collar C.

F is a second bevel gear-wheel, in all respects like wheel E, except that it has a laterally-projecting boss, *l*, in which the operating-lever H is secured. Wheel F is mounted so as to turn freely on the spindle next to collar D.

I is a pinion-frame mounted between gear-wheels E and F, and forming a bearing, *m*, in which the spindle turns, and carrying the pinions *n* and *o*, which turn on short shafts *p* and *r*, and both intermesh with both the gear-wheels E and F.

A rod, S, secured to frame L, serves as a handle to hold and direct the tool.

In operation, a tool having been secured in socket B and placed in position for work, the tool is pressed against the work by means of a lever or other suitable feeding device applied to the opposite end of the spindle. The operator now takes rod S in one hand, thus holding frame I stationary, and, seizing the operating-lever H in the other hand, oscillates said lever. When lever H is carried by the operator in the direction indicated by the arrow, wheel F is turned in the same direction and the notches *j* therein engage pawls *i*, and the spindle is turned in the same direction as wheel F. At the same time the movement of wheel F operates, through pinions *n* and *o*, to turn wheel E in the opposite direction, its notches *j* slipping idly over the pawls *d*. When the operating-lever moves in the opposite direction on its return movement, the notches *j* in wheel F slip idly over pawls *i*, and the movement of wheel E being now reversed its notches *j* engage pawls *d* and the spindle is turned in the same direction as at first.

It will be observed that only one of the pinions *n* and *o* is absolutely essential to the movements above described; but for the purpose of equalizing the strain on the opposite sides of the spindle, thus securing steadiness of motion, the use of both pinions is preferred.

I claim as my invention—

In a ratchet-drill stock, the spindle, the flanged collars, each carrying a pawl pivoted thereto, and both rigidly secured to the spindle, the pair of bevel gear-wheels mounted so as to turn on the spindle against said collars, and each having a recess, *j*, and interior

notches, *k*, arranged to receive and engage said pawls, the operating-lever secured to one of said bevel gear-wheels, the pinion-frame forming a bearing for the spindle, arranged between the bevel gear-wheels, and carrying one or more bevel-pinions, which intermesh with both of the bevel gear-wheels, and the handle secured to the pinion-frame, all combined and arranged to co-operate substantially as and for the purpose specified.

WILLIAM COPPAGE.

Witnesses:
JOHN M. SIMS,
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